

**Notice of Allowability**

Application No.

10/756,172

Examiner

Manav Seth

Applicant(s)

THIERET ET AL.

Art Unit

2625

**-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address--**

All claims being allowable, PROSECUTION ON THE MERITS IS (OR REMAINS) CLOSED in this application. If not included herewith (or previously mailed), a Notice of Allowance (PTOL-85) or other appropriate communication will be mailed in due course. **THIS NOTICE OF ALLOWABILITY IS NOT A GRANT OF PATENT RIGHTS.** This application is subject to withdrawal from issue at the initiative of the Office or upon petition by the applicant. See 37 CFR 1.313 and MPEP 1308.

1. ☒ This communication is responsive to 08/10/2005.
2. ☒ The allowed claim(s) is/are 1-24,26 (renumbered as 1-25).
3. ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some\* c) ☐ None of the:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this national stage application from the International Bureau (PCT Rule 17.2(a)).

\* Certified copies not received: \_\_\_\_\_.

Applicant has THREE MONTHS FROM THE "MAILING DATE" of this communication to file a reply complying with the requirements noted below. Failure to timely comply will result in ABANDONMENT of this application.

**THIS THREE-MONTH PERIOD IS NOT EXTENDABLE.**

4. ☐ A SUBSTITUTE OATH OR DECLARATION must be submitted. Note the attached EXAMINER'S AMENDMENT or NOTICE OF INFORMAL PATENT APPLICATION (PTO-152) which gives reason(s) why the oath or declaration is deficient.
5. ☐ CORRECTED DRAWINGS (as "replacement sheets") must be submitted.
- (a) ☐ including changes required by the Notice of Draftsperson's Patent Drawing Review (PTO-948) attached
- 1) ☐ hereto or 2) ☐ to Paper No./Mail Date \_\_\_\_\_.
- (b) ☐ including changes required by the attached Examiner's Amendment / Comment or in the Office action of Paper No./Mail Date \_\_\_\_\_.
- Identifying indicia such as the application number (see 37 CFR 1.84(c)) should be written on the drawings in the front (not the back) of each sheet. Replacement sheet(s) should be labeled as such in the header according to 37 CFR 1.121(d).
6. ☐ DEPOSIT OF and/or INFORMATION about the deposit of BIOLOGICAL MATERIAL must be submitted. Note the attached Examiner's comment regarding REQUIREMENT FOR THE DEPOSIT OF BIOLOGICAL MATERIAL.

**Attachment(s)**

- |   |  |
|---|--|
| 1. <input type="checkbox"/> Notice of References Cited (PTO-892)  | 5. <input type="checkbox"/> Notice of Informal Patent Application (PTO-152)                                  |
| 2. <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)                                | 6. <input checked="" type="checkbox"/> Interview Summary (PTO-413),<br>Paper No./Mail Date <u>11032005</u> . |
| 3. <input type="checkbox"/> Information Disclosure Statements (PTO-1449 or PTO/SB/08),<br>Paper No./Mail Date _____ | 7. <input checked="" type="checkbox"/> Examiner's Amendment/Comment  |
| 4. <input type="checkbox"/> Examiner's Comment Regarding Requirement for Deposit<br>of Biological Material          | 8. <input checked="" type="checkbox"/> Examiner's Statement of Reasons for Allowance                         |
|   | 9. <input type="checkbox"/> Other _____  |

## DETAILED ACTION

### Response to Amendment

1. Applicant's amendment filed on August 10, 2005 has been considered and entered in full.
2. Applicant's arguments and amendments with respect to the claims, drawings and specification have been considered and are persuasive. Therefore objections on the respective claims, drawings and specification have been withdrawn.
3. Based on examiner's amendment to the claims with respect to applicant's approval, the 35 USC 103(a) rejections on the respective claims have been withdrawn.

### *Examiner's Amendment*

4. An examiner's amendment to the record appears below. Should the changes and/or additions be unacceptable to applicant, an amendment may be filed as provided by 37 CFR 1.312. To ensure consideration of such an amendment, it MUST be submitted no later than the payment of the issue fee.

Authorization for this examiner's amendment was given in a telephone interview with applicant's attorney of record, Mr. Jeffrey Duquette, Registration no. 45487, on 10/26/2005, at 12:00 p.m., Examiner's amendment in the claims:

*Claims*

5. The following changes to the claims have been approved by the examiner and agreed upon by applicant:

(a) Replace **Claim 1** limitation “ i) warping the first 2D representation to generate a second 2D representation, the warping step including applying to the first 2D representation a selected linear mapping, where that selected linear mapping would map, in order to match dimensions of the respective slice within the 3D representation, a region defined by projection, at the respective focus, of corners of that slice onto the detector plane,” recited in lines 13-18 of page 2 of the amendment filed, by, -- i) warping the first 2D representation to generate a second 2D representation, wherein the first 2D representation is formed from intensity differences between the said measured projection images and a projection of an estimate of the volume, the warping step including applying to the first 2D representation a selected linear mapping, where that selected linear mapping would map, in order to match dimensions of the respective slice within the 3D representation, a region defined by projection, at the respective focus, of corners of that slice onto the detector plane,--.

(b) Replace **Claim 7** limitation “ i) warping the respective slice of the first 3D representation to generate a respective slice of second 3D representation, the warping step including applying to the respective slice of the first 3D representation a selected linear mapping, where that selected linear mapping would map a region defined by projection of corners of the respective projection image onto the respective slice for the respective focus to match dimensions of the projection image in the

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detector plane,” recited in lines 7-12 of page 4 of the amendment filed, by, -- i) warping the respective slice of the first 3D representation to generate a respective slice of second 3D representation, wherein the first 3D representation is formed from intensity differences between the said measured projection images and a projection of an estimate of the volume, the warping step including applying to the respective slice of the first 3D representation a selected linear mapping, where that selected linear mapping would map a region defined by projection of corners of the respective projection image onto the respective slice for the respective focus to match dimensions of the projection image in the detector plane, --.

(c) Cancel Claim 25.

*Allowable Subject Matter*

**Reasons of Allowance:**

6. Claims 1-24 and 26 (renumbered as 1-25) are allowed.

The following is an examiner’s statement of reasons of allowance:

Both the instant invention and the closest prior art Webber et al., U.S. Patent No. 6,289,235 are directed to a method of rendering a three-dimensional representation of a object using projected two dimensional images. The instant invention further recites the limitation “The instant invention further recites the limitation “wherein the first 2D representation is formed from intensity differences between the said measured projection images and a projection of an estimate of the volume” in claim 1 and the limitation “wherein the first 2D representation is formed from intensity

differences between the said measured projection images and a projection of an estimate of the volume” in claim 7, which is not taught by the prior art of record. The instant invention further recites the limitation “the back-projecting step including warping the second 2D representation to generate a third 2D representation by mapping pixels of the second 2D representation to pixels of the third 2D representation as if rays from the source, when positioned at the respective focus, projected through the volume at a substantially constant angle normal to the detector plane of the respective projection, where the second and third 2D representations are in the detector plane.” in claim 12 whereas Webber, the closest prior art, does not teach the back-projecting step including warping the second 2D representation to generate a third 2D representation by mapping pixels of the second 2D representation to pixels of the third 2D representation using the ray projections at a constant angle.


Therefore claims 1, 7 and 12 are allowed. All other claims depending on claims 1, 7 and 12 are allowed at least by dependency on claims 1, 7 and 12.


Any comments considered necessary by applicant must be submitted no later than the payment of the issue fee and, to avoid processing delays, should preferably accompany the issue fee. Such submissions should be clearly labeled “Comments on Statement of Reasons for Allowance.”

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Manav Seth whose telephone number is (571) 272-7456. The examiner can normally be reached on Monday to Friday from 8:30 am to 5:00 pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Bhavesh Mehta, can be reached on (571) 272-7453. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

  
Manav Seth  
Art Unit 2625  
November 03, 2005

  
**KANJIBHAI PATEL**  
**PRIMARY EXAMINER**